An Empirical Study of Selective Optimization (2000) (Make Corrections) (8 citations)

Matthew Arnold, Michael Hind, Barbara G. Ryder

Lecture Notes in Computer Science

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Abstract: . This paper describes an empirical study of selective optimization using the Jalape~no Java virtual machine. The goal of the study is to provide insight into the design and implementation of an adaptive system by investigating the performance potential of selective optimization and identifying the classes of applications for which this performance can be expected. Two types of offline profiling information are used to guide selective optimization, and several strategies for selecting the... (Update)

Context of citations to this paper: **More**

...idle processors; the combination of which, to our knowledge, has not been examined and published prior. **In other work, Arnold, et al. [25] uses profiles to guide static compilation.** The goal of this project was to determine the performance potential of dynamic, adaptive...

.... **optimization approach avoids the overhead of optimizing all methods, yielding larger performance improvements for shorter running programs [7].** Long running applications, such as server applications, will easily amortize the cost of optimizing all methods, for Funded,in part,...

Cited by: **More**
Online Profiling And Feedback-Directed Optimization Of Java - Arnold (2002) (Correct)
Speedup Prediction for Selective Compilation of.. - de Verdiere.. (Correct)
A Framework for Reducing the Cost of Instrumented Code - Arnold, Ryder (2001) (Correct)

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5: Continuous Program Optimization (context) - Kistler - 1999

BibTeX entry: **(Update)**

M. Arnold, M. Hind, and B. G. Ryder. An empirical study of selective optimization. In 13th International Workshop on Languages and Compilers for Parallel Computing, Aug. 2000. http://citeseer.ist.psu.edu/arnold00empirical.html More

```
@article{ arnold01empirical,
    author = "Matthew Arnold and Michael Hind and Barbara G. Ryder",
    title = "An Empirical Study of Selective Optimization",
    journal = "Lecture Notes in Computer Science",
    volume = "2017",
    pages = "49--??",
    year = "2001",
    url = "citeseer.ist.psu.edu/arnold00empirical.html" }
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Citations (may not include all citations):

126 A general approach for run-time specialization and its appli.. (context) - Consel, Noel - 1996 ACM DBLP
113 Efficient implementation of the Smalltalk-80 system - Deutsch, Schiffman - 1984 ACM DBLP
98 Dynamo: A transparent dynamic optimization system - Bala, Duesterwald et al. - 2000 DBLP
95 Making pure object-oriented languages practical - Chambers, Ungar - 1991 ACM DBLP
86 effective dynamic compilation (context) - Auslander, Philipose et al. - 1996
48 An evaluation of staged run-time optimizations in DyC (context) - Grant, Philipose et al. - 1999 ACM DBLP
46 Practicing JUDO: Java Under Dynamic Optimizations (context) - Cierniak, Lueh et al. - 2000 DBLP
38 SPEC JVM98 Benchmarks (context) - Performance, Corporation - 1998
28 ano, V. C. Sreedhar, Harini Srinivasan, and John Whaley. The.. (context) - Burke, Choi et al. - 1999
28 and high-level dynamic code generation (context) - Poletto, Engler et al. - 1997
25 Efficient JavaVM Just-in-Time compilation - Krall - 1998 ACM DBLP
22 Architectural issues in Java runtime systems - Radhakrishnan, Vijaykrishnan et al. - 2000 DBLP
21 Continuous Program Optimization (context) - Kistler - 1999 ACM
18 System support for automated profiling and optimization (context) - Zhang, Wang et al. - 1997 DBLP
18 Efficient support for complex numbers in Java - Wu, Midkiff et al. - 1999 ACM DBLP
17 LaTTe: A Java VM Just-in-Time compiler with fast and efficie.. - Yang, Moon et al. - 1999 DBLP
15 Adaptive Systems for the Dynamic Run-Time Optimization of Pr.. (context) - Hansen - 1974
15 Efficient and precise modeling of exceptions for the analysi.. - Choi, Grove et al. - 1999 ACM DBLP
14 Dynamic specialization in the Fabius system - Leone, Lee - 1998 ACM DBLP
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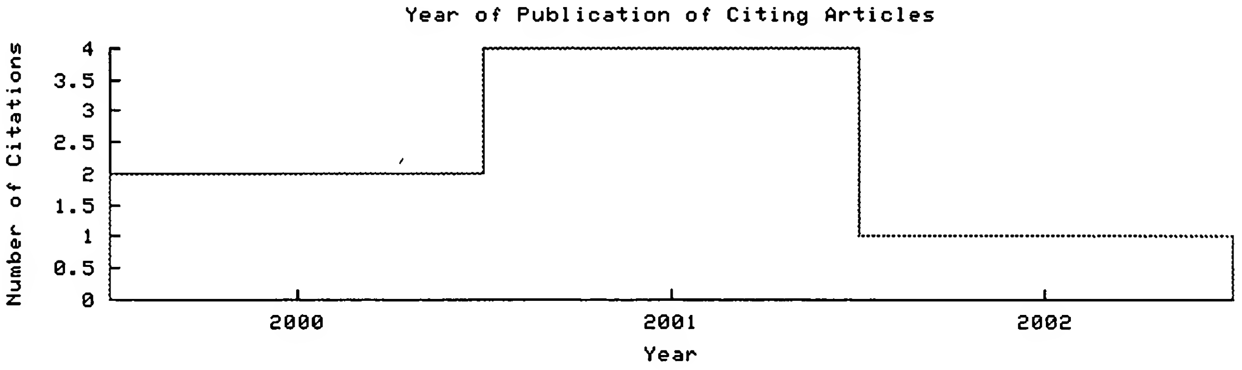
12 An infrastructure for profile-driven dynamic recompilation - Burger, Dybvig - 1998 ACM DBLP
9 Adaptive optimization in the Jalape~no JVM (context) - Arnold, Grove et al. - 2000
9 Java server benchmarks - Baylor, Devarakonda et al. - 2000 ACM DBLP
8 Efficient Compilation and Profile-Driven Dynamic Recompilati.. (context) - Burger - 1997 ACM
7 Overview of the IBM Java Just-in-Time compiler (context) - Suganama, Ogasawara et al. - 2000 ACM DBLP
6 White paper available at http://java (context) - Hotspot, architecture - 1999
5 Dynamic optimization through the use of automatic runtime sp.. - Whaley - 1999
4 Combining emulation and binary translation (context) - Hookway, Herdeg - 1997
4 and Ton Ngo (context) - Alpern, Attanasio et al. - 1999
4 Reconciling responsiveness with performance in pure object-o.. (context) - Holzle, Ungar - 1996 ACM



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1 Dynamo: a transparent dynamic optimization system

Vasanth Bala, Evelyn Duesterwald, Sanjeev Banerjia

May 2000 ACM SIGPLAN Notices , Proceedings of the ACM SIGPLAN 2000 conference on Programmi implementation, Volume 35 Issue 5

Full text available: pdf(156.03 KB) Additional Information: full citation, abstract, references, citings, index terms

We describe the design and implementation of Dynamo, a software dynamic optimization system transparently improving the performance of a native instruction stream as it executes on the pro instruction stream to Dynamo can be dynamically generated (by a JIT for example), or it can com statically compiled native binary. This paper evaluates the Dynamo system in the latter, more ch order to emphasize the ...

2 Low power SOCs and NOCs: Disk drive energy optimization for audio-video applications

Ravishankar Rao, Sarma Vrudhula, Musaravakkam S. Krishnan

September 2004 Proceedings of the 2004 international conference on Compilers, architecture, and sy systems

Full text available: pdf(653.24 KB) Additional Information: full citation, abstract, references, index terms

Earlier techniques for low power speed control in disk drives running audio/video applications at the drive's speed to the data rate requirement of the host application (just-in-time speed), or ru speed, neither of which are energy-optimal in general. Starting from the theory of DC motors, w power model of a disk drive. We then analytically obtain the speed profile (function of time) that required to transf ...

Keywords: disk drive, low power, multimedia, speed control

3 Speculative execution: A new speculation technique to optimize floating-point performance w reproducibility

Mikio Takeuchi, Hideaki Komatsu, Toshio Nakatani
June 2003 Proceedings of the 17th annual international conference on Supercomputing
Full text available: pdf(227.01 KB) Additional Information: full citation, abstract, references, index terms

The bit-by-bit reproducibility of floating-point results, which is defined by the IEEE 754 standard such as reassociation and the use of native operations such as fused multiply-add (FMA), and th floating-point performance. Recent network-oriented languages such as Java strictly conform to their numerical computing performance becomes inherently lower than conventional languages.I a new software te ...

Keywords: IA-64, IEEE 754, Java, accuracy, bit-by-bit reproducibility, floating-point speculation instruction-level parallelism, just-in-time compiler, loop unrolling, prefetching, privatization, rea pipelining, striding

4 Document querying and transformation: Lazy XSL transformations

Steffen Schott, Markus L. Noga
November 2003 Proceedings of the 2003 ACM symposium on Document engineering
Full text available: pdf(335.83 KB) Additional Information: full citation, abstract, references, index terms

We introduce a lazy XSLT interpreter that provides random access to the transformation result. T pipelining of transformation sequences. Nodes of the result tree are computed only upon initial a computations have limited fan-in, sparse output coverage propagates backwards through the pip measurements with traditional eager implementations, our approach is on par for complete cove coverage becomes sparser. In contrast to eag ...

5 Data size optimizations for java programs

C. Scott Ananian, Martin Rinard
June 2003 ACM SIGPLAN Notices , Proceedings of the 2003 ACM SIGPLAN conference on Language, embedded systems, Volume 38 Issue 7
Full text available: pdf(349.36 KB) Additional Information: full citation, abstract, references, citings, index terms

We present a set of techniques for reducing the memory consumption of object-oriented program include analysis algorithms and optimizations that use the results of these analyses to eliminate values, reduce the sizes of fields based on the range of values that can appear in each field, and common default values or usage patterns. We apply these optimizations both to fields declared b implicit fields in the runti ...

Keywords: bitwidth analysis, embedded systems, field externalization, field packing, size optimiz specialization

6 Requirements for and evaluation of RMI protocols for scientific computing

Madhusudhan Govindaraju, Aleksander Slominski, Venkatesh Choppella, Randall Bramley, Dennis
November 2000 Proceedings of the 2000 ACM/IEEE conference on Supercomputing (CDROM)
Full text available: pdf(306.83 KB) Publisher Site Additional Information: full citation, abstract, references, citings,

Distributed software component architectures provide a promising approach to the problem of b scientific Grid applications. Communication in these component architectures is based on Remot protocols that allow one software component to invoke the functionality of another. Examples inc invocation (Java RMI) and the new Simple Object Access Protocol (SOAP). SOAP has the advanta programming languages and component ...

Keywords: Distributed computing, software component systems, communicationprotocols, RMI,J

7 Technical correspondence: The simplest heuristics may be the best in Java JIT compilers
Jonathan L. Schilling
February 2003 ACM SIGPLAN Notices, Volume 38 Issue 2
Full text available: pdf(1.00 MB) Additional Information: full citation, abstract, references

The simplest strategy in Java just-in-time (JIT) compilers is to compile each Java method the fir
However, better performance can often be obtained by selectively compiling methods based on h
are likely to be called during the rest of the program's execution. Various heuristics are examine
Caldera UNIX Java JIT compiler. The simplest heuristics involving the number of times the meth
the size of th ...

Keywords: JIT, Java, heuristics, just-in-time compiler, performance, selective compilation

8 A selective, just-in-time aspect weaver
Yoshiki Sato, Shigeru Chiba, Michiaki Tatsubori
September 2003 Proceedings of the second international conference on Generative programming and
Full text available: pdf(256.62 KB) Additional Information: full citation, abstract, references, citings, index terms

Dynamic AOP (Aspect-Oriented Programming) is receiving growing interests in both the academ
it allows weaving aspects with a program at runtime, it is useful for rapid prototyping and adapt
previous implementations of dynamic AOP systems suffered from serious performance penalties.
new efficient dynamic AOP system in Java for addressing the underlying problem. This system ca
two approaches. When a ...

9 Fast, effective code generation in a just-in-time Java compiler
Ali-Reza Adl-Tabatabai, Micha? Cierniak, Guei-Yuan Lueh, Vishesh M. Parikh, James M. Stichnoth
May 1998 ACM SIGPLAN Notices , Proceedings of the ACM SIGPLAN 1998 conference on Programmi
implementation, Volume 33 Issue 5
Full text available: pdf(1.44 MB) Additional Information: full citation, abstract, references, citings, index terms

A "Just-In-Time" (JIT) Java compiler produces native code from Java byte code instructions duri
such, compilation speed is more important in a Java JIT compiler than in a traditional compiler,
algorithms to be lightweight and effective. We present the structure of a Java JIT compiler for th
describe the lightweight implementation of JIT compiler optimizations (e.g., common subexpress
allocation, and elim ...

10 Query optimization for selections using bitmaps
Ming-Chuan Wu
June 1999 ACM SIGMOD Record , Proceedings of the 1999 ACM SIGMOD international conference on
Volume 28 Issue 2
Full text available: pdf(1.54 MB) Additional Information: full citation, abstract, references, citings, index terms

Bitmaps are popular indexes for data warehouse (DW) applications and most database managem
today. This paper proposes query optimization strategies for selections using bitmaps. Both cont
selection criteria are considered. Query optimization strategies are categorized into static and dy
strategies discussed are the optimal design of bitmaps, and algorithms based on tree and logica

11 Feature selection, perception learning, and a usability case study for text categorization
Hwee Tou Ng, Wei Boon Goh, Kok Leong Low
July 1997 ACM SIGIR Forum , Proceedings of the 20th annual international ACM SIGIR conference o
development in information retrieval, Volume 31 Issue SI
Full text available: pdf(1.45 MB) Additional Information: full citation, references, citings, index terms

12 Text classification: Feature selection using linear classifier weights: interaction with classifica
Dunja Mladeni?, Janez Brank, Marko Grobelnik, Natasa Milic-Frayling
July 2004 Proceedings of the 27th annual international conference on Research and development in
Full text available: pdf(318.62 KB) Additional Information: full citation, abstract, references, index terms

This paper explores feature scoring and selection based on weights from linear classification mod these methods combine with various learning models. Our comparative analysis includes three le Bayes, Perceptron, and Support Vector Machines (SVM) in combination with three feature weigh Information Gain, and weights from linear models, the linear SVM and Perceptron. Experiments using weights f ...

Keywords: SVM normal, feature scoring, feature selection, information retrieval, linear SVM, tex representation

13 Partial behavioral reflection: spatial and temporal selection of reification
Éric Tanter, Jacques Noyé, Denis Caromel, Pierre Cointe
October 2003 ACM SIGPLAN Notices , Proceedings of the 18th annual ACM SIGPLAN conference on O programing, systems, languages, and applications, Volume 38 Issue 11
Full text available: pdf(261.44 KB) Additional Information: full citation, abstract, references, index terms

Behavioral reflection is a powerful approach for adapting the behavior of running applications. In and motivate *partial behavioral reflection*, an approach to more efficient and flexible behavioral r *spatial* and *temporal* dimensions of such reflection, and propose a model of partial behavioral re notion of *hooksets*. In the context of Java, we describe a reflective architecture offering appropri

Keywords: aspect-oriented programming, open systems, reflection

14 Scalable feature selection, classification and signature generation for organizing large text da hierarchical topic taxonomies
Soumen Chakrabarti, Byron Dom, Rakesh Agrawal, Prabhakar Raghavan
August 1998 The VLDB Journal &mdash; The International Journal on Very Large Data Bases, Volu
Full text available: pdf(281.37 KB) Additional Information: full citation, abstract, citings, index terms

We explore how to organize large text databases hierarchically by topic to aid better searching, Many corpora, such as internet directories, digital libraries, and patent databases are manually o hierarchies, also called *taxonomies*. Similar to indices for relational data, taxonomies make sear efficient. However, the exponential growth in the volume of on-line textual information makes it maintain such taxono ...

15 Document adaptation: Supporting virtual documents in just-in-time hypermedia systems
Li Zhang, Michael Bieber, David Millard, Vincent Oria
October 2004 Proceedings of the 2004 ACM symposium on Document engineering
Full text available: pdf(707.51 KB) Additional Information: full citation, abstract, references, index terms

Many analytical or computational applications especially legacy systems create display screens in response to user queries "dynamically" or in "real time". The documents" do not exist in advance and thus hypermedia features must be ge - automatically and dynamically. Additionally the hypermedia features may ha documents to be generated or re-generated. This paper focuses on the specific hypermedia support for ...

Keywords: dynamic hypermedia functionality, dynamic regeneration, integratio just-in-time hypermedia, re-identification, re-location, virtual documents

16 Query optimization in star computer networks
Larry Kerschberg, Peter D. Ting, S. Bing Yao
December 1982 ACM Transactions on Database Systems (TODS), Volume 7 Issue 4
Full text available: pdf(2.09 MB) Additional Information: full citation, abstract, references, citings, index terms

Query processing is investigated for relational databases distributed over several computers org Minimal response-time processing strategies are presented for queries involving the select, proje These strategies depend on system parameters such as communication costs and different mach database parameters such as relation cardinality and file size; and query parameters such as est number of tuples in ...

Keywords: query optimization, relational database system, star computer network

17 Recompilation for debugging support in a JIT-compiler
Mustafa M. Tikir, Jeffrey K. Hollingsworth, Guei-Yuan Lueh
November 2002 ACM SIGSOFT Software Engineering Notes , Proceedings of the 2002 ACM SIGPLAN-Program analysis for software tools and engineering, Volume 28 Issue 1
Full text available: pdf(89.55 KB) Additional Information: full citation, abstract, references, index terms

A static Java compiler converts Java source code into a verifiably secure and compact architectur format, called Java *byte codes*. The Java byte codes can be either interpreted by a Java Virtual M native code by Java Just-In-Time compilers. Static Java compilers embed debug information in t used by the source level debuggers. However, the debug information is generated for architectur and most o ...

Keywords: Java, Java virtual machine debugger interface, debug information, dynamic recompil just-in-time compilation

18 Code scheduling: Integrated prepass scheduling for a Java Just-In-Time compiler on the IA-
Tatsushi Inagaki, Hideaki Komatsu, Toshio Nakatani
March 2003 Proceedings of the international symposium on Code generation and optimization: feedb
optimization
Full text available: pdf(835.29 KB) Publisher Site Additional Information: full citation, abstract, references, ind

We present a new integrated prepass scheduling (IPS) algorithm for a Java Just-In-Time (JIT) co
register minimization into list scheduling. We use backtracking in the list scheduling when we ha
available registers. To reduce the overhead of backtracking, we incrementally maintain a set of c
undoing scheduling. To maximize the ILP after undoing scheduling, we select an instruction chai
increase in the total exec ...

19 Special issue on special feature: An introduction to variable and feature selection
Isabelle Guyon, André Elisseeff
March 2003 The Journal of Machine Learning Research, Volume 3
Full text available: pdf(862.82 KB) Additional Information: full citation, abstract, citings, index terms

Variable and feature selection have become the focus of much research in areas of application fo
or hundreds of thousands of variables are available. These areas include text processing of inter
expression array analysis, and combinatorial chemistry. The objective of variable selection is thr
prediction performance of the predictors, providing faster and more cost-effective predictors, an
understanding of the ...

20 Register-sensitive selection, duplication, and sequencing of instructions
Vivek Sarkar, Mauricio J. Serrano, Barbara B. Simons
June 2001 Proceedings of the 15th international conference on Supercomputing
Full text available: pdf(235.16 KB) Additional Information: full citation, abstract, references, index terms

In this paper, we present a new framework for *selecting, duplicating* and *seque*
as to decrease register pressure. The motivation for this work is to target curre
high-performance processors where reductions in register pressure in the comp
lead to improved performance.

For instruction selection and duplication, a unique feature of our approach is the ability t
transformations on intermediate-language instru ...

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1 Continuous program optimization: A case study
Thomas Kistler, Michael Franz
July 2003 ACM Transactions on Programming Languages and Systems (TOPLAS), Volume 25 Issu
Full text available: pdf(877.67 KB) Additional Information: full citation, abstract, references, index terms, review

Much of the software in everyday operation is not making optimal use of the hardware on which the reasons for this discrepancy are hardware/software mismatches, modularization overheads i engineering considerations, and the inability of systems to adapt to users' behaviors.A solution t delay code generation until load time. This is the earliest point at which a piece of software can b capabilities of the ...

Keywords: Dynamic code generation, continuous program optimization, dynamic reoptimization

2 The benefits and costs of DyC's run-time optimizations
Brian Grant, Markus Mock, Matthai Philipose, Craig Chambers, Susan J. Eggers
September 2000 ACM Transactions on Programming Languages and Systems (TOPLAS), Volume 2
Full text available: pdf(1.59 MB) Additional Information: full citation, abstract, references, citings, index terms

DyC selectively dynamically compiles programs during their execution, utilizing the run-time-com and data structures to apply optimizations that are based on partial evaluation. The dynamic op at static compile time in order to reduce their run-time cost; we call this staging. DyC's staged o an advanced binding-time analysis that supports polyvariant specialization (enabling both single

Keywords: dynamic compilation, specialization

3 Power: Performance directed energy management for main memory and disks
Xiaodong Li, Zhenmin Li, Francis David, Pin Zhou, Yuanyuan Zhou, Sarita Adve, Sanjeev Kumar
October 2004 Proceedings of the 11th international conference on Architectural support for programm operating systems
Full text available: pdf(658.89 KB) Additional Information: full citation, abstract, references, index terms

Much research has been conducted on energy management for memory and disks. Most studies dynamically transition devices to low power modes after they are idle for a certain threshold per algorithms used in the past have two major limitations. First, they require painstaking, applicati tuning of their thresholds to achieve energy savings without significantly degrading performance provide performance guara ...

Keywords: adaptation algorithms, control algorithms, low power design, memory and disk energ power mode device

4 The design of dynamically reconfigurable datapath coprocessors
Zhining Huang, Sharad Malik, Nahri Moreano, Guido Araujo
May 2004 ACM Transactions on Embedded Computing Systems (TECS), Volume 3 Issue 2
Full text available: pdf(467.82 KB) Additional Information: full citation, abstract, references, index terms

Increasing nonrecurring engineering and mask costs are making it harder to turn to hardwired a integrated circuit (ASIC) solutions for high-performance applications. The volume required to am has been increasing, making it increasingly expensive to afford ASIC solutions for medium-volum to designers seeking programmable solutions of varying sorts using these so-called programmab programmable platforms span a lar ...

Keywords: Loop pipelining, coarse-grain reconfigurable fabric, datapath synthesis, interconnecti datapath

5 Exploiting inheritance and structure semantics for effective clustering and buffering in an obje
E. E. Chang, R. H. Katz
June 1989 ACM SIGMOD Record , Proceedings of the 1989 ACM SIGMOD international conference on Volume 18 Issue 2
Full text available: pdf(1.21 MB) Additional Information: full citation, abstract, references, citings, index terms

Object-oriented databases provide new kinds of data semantics in terms of inheritance and struc paper examines how to use these additional semantics to obtain more effective object buffering information collected from real-world object-oriented applications, the Berkeley CAD Group's OC basis for a simulation model with which to investigate alternative buffering and clustering strate measurement ...

6 Evaluation of eye gaze interaction
Linda E. Sibert, Robert J. K. Jacob
April 2000 Proceedings of the SIGCHI conference on Human factors in computing systems
Full text available: pdf(903.63 KB) Additional Information: full citation, abstract, references, citings, index terms

Eye gaze interaction can provide a convenient and natural addition to user-com have previously reported on our interaction techniques using eye gaze [10]. W seemed useful in demonstration, we now investigate their strengths and weak setting. In this paper, we present two experiments that compare an interaction developed for object selection based on a where a person is looking with the m selection method ...

Keywords: eye movements, eye tracking, interaction techniques, user interfac

7 Painting and rendering textures on unparameterized models
David (grue) DeBry, Jonathan Gibbs, Devorah DeLeon Petty, Nate Robins
July 2002 ACM Transactions on Graphics (TOG) , Proceedings of the 29th annual conference on Com interactive techniques, Volume 21 Issue 3
Full text available: pdf(4.88 MB) Additional Information: full citation, abstract, references, citings, index terms

This paper presents a solution for texture mapping unparameterized models. The quality of a tex limited by the model's parameterization into a 2D texture space. For models with complex topolo distributions of structural detail, finding this parameterization can be very difficult and usually m manually through a slow iterative process between the modeler and texture painter. This is espe carry no natural parameteriz ...

Keywords: level of detail algorithms, paint systems, rendering systems, spatial data structures,

8 Service infastructure and network management: Using code collection to support large applic devices
Lucian Popa, Irina Athanasiu, Costin Raiciu, Raju Pandey, Radu Teodorescu
September 2004 Proceedings of the 10th annual international conference on Mobile computing and
Full text available: pdf(252.95 KB) Additional Information: full citation, abstract, references, index terms

The progress of mobile device technology unfolds a new spectrum of applications that challenges infrastructure models. Most of these devices are perceived by their users as "appliances" rather t accordingly the application management should be done transparently by the underlying system managed explicitly by the user. Memory management on such devices should consider new type involving code mobility such as mobile ...

Keywords: caching, code collection, garbage collection

9 Design space exploration and scheduling for embedded software: Leakage aware dynamic v
real-time embedded systems

Ravindra Jejurikar, Cristiano Pereira, Rajesh Gupta
June 2004 Proceedings of the 41st annual conference on Design automation
Full text available: pdf(109.61 KB) Additional Information: full citation, abstract, references, citings, index terms

A five-fold increase in leakage current is predicted with each technology generation. While Dyna
is known to reduce dynamic power consumption, it also causes increased leakage energy drain b
over which a computation is carried out. Therefore, for minimization of the total energy, one nee
operating point, called the *critical speed*. We compute processor slowdown factors based on the
minimization. ...

Keywords: EDF scheduling, critical speed, leakage power, low power scheduling, procrastication

10 Distributed environment: A simulation model for X.500 directories: initial experiences

M. A. Bauer, J. M. Bennett, J. MacAuley, A. D. Marshall
October 1991 Proceedings of the 1991 conference of the Centre for Advanced Studies on Collaborat
Full text available: pdf(1.32 MB) Additional Information: full citation, abstract, references, citings

The X.500 Standard has been proposed as the basis for a directory service in distributed system
as to whether it is suited to this use. This paper describes the initial work on the development of
testbed to be used in investigating the behaviour of X.500 directories in large distributed environ
of the testbed has been developed using the Quipu prototype implementation of X.500 and the N
tool. The long-te ...

11 Effectiveness of cross-platform optimizations for a java just-in-time compiler

Kazuaki Ishizaki, Mikio Takeuchi, Kiyokuni Kawachiya, Toshio Suganuma, Osamu Gohda, Tatsushi
Kazunori Ogata, Motohiro Kawahito, Toshiaki Yasue, Takeshi Ogasawara, Tamiya Onodera, Hideak
Nakatani
October 2003 ACM SIGPLAN Notices , Proceedings of the 18th annual ACM SIGPLAN conference on O
programing, systems, languages, and applications, Volume 38 Issue 11
Full text available: pdf(405.65 KB) Additional Information: full citation, abstract, references, citings, index terms

This paper describes the system overview of our Java Just-In-Time (JIT) compiler, which is the b
production version of IBM Java JIT compiler that supports a diversity of processor architectures i
64-bit modes, CISC, RISC, and VLIW architectures. In particular, we focus on the design and ev
cross-platform optimizations that are common across different architectures. We studied the effe
optimization by selectively disabling ...

Keywords: Java, just-in-time compiler, optimization

12 A study of devirtualization techniques for a Java Just-In-Time compiler

Kazuaki Ishizaki, Motohiro Kawahito, Toshiaki Yasue, Hideaki Komatsu, Toshio Nakatani
October 2000 ACM SIGPLAN Notices , Proceedings of the 15th ACM SIGPLAN conference on Object-or
systems, languages, and applications, Volume 35 Issue 10
Full text available: pdf(225.89 KB) Additional Information: full citation, abstract, references, citings, index terms

Many devirtualization techniques have been proposed to reduce the runtime overhead of dynam
object-oriented languages, however, most of them are less effective or cannot be applied for Jav
manner. This is partly because Java is a statically-typed language and thus transforming a dyna
does not make a tangible performance gain (owing to the low overhead of accessing the method
and partly because t ...

13 Military applications: Agent models I: frequency-based designs for terminating simulations: a example

Susan M. Sanchez, Hsin-Fu Wu

December 2003 Proceedings of the 35th conference on Winter simulation: driving innovation

Full text available: pdf(1.46 MB) Additional Information: full citation, abstract, references

In recent years, the U.S. Marine Corps has begun developing an infrastructure agent-based models and simulation, computing power, and data analysis and v technologies to help answer complex questions in military operations. Factor s are of particular interest, since even relatively simple agent-based models may even thousands) of inputs that can be varied. We describe a new experimental frequency-based design, that ...

14 HDR and perception: Perception-motivated high dynamic range video encoding

Rafal Mantiuk, Grzegorz Krawczyk, Karol Myszkowski, Hans-Peter Seidel

August 2004 ACM Transactions on Graphics (TOG), Volume 23 Issue 3

Full text available: pdf(3.23 MB) Additional Information: full citation, abstract, references, index terms

Due to rapid technological progress in high dynamic range (HDR) video capture and display, the transmission of such data is crucial for the completeness of any HDR imaging pipeline. We propo inter-frame encoding of HDR video, which is embedded in the well-established MPEG-4 video com key component of our technique is luminance quantization that is optimized for the contrast thre human visual system. The quant ...

Keywords: DCT encoding, HDR video, MPEG-4, adaptation, high dynamic range, luminance quan video compression, video processing, visual perception

15 Procrastination scheduling in fixed priority real-time systems

Ravindra Jejurikar, Rajesh Gupta

June 2004 ACM SIGPLAN Notices , Proceedings of the 2004 ACM SIGPLAN/SIGBED conference on La tools, Volume 39 Issue 7

Full text available: pdf(115.60 KB) Additional Information: full citation, abstract, references, citings, index terms

Procrastination scheduling has gained importance for energy efficiency due to the rapid increase consumption. Under procrastination scheduling, task executions are delayed to extend processor thereby reducing the idle energy consumption. We propose algorithms to compute the maximum for tasks scheduled by either the fixed priority or the dual priority scheduling policy. We show th always guarantees longe ...

Keywords: critical speed, fixed priority, leakage power, low power scheduling, procrastication sc systems

16 Time-space consistency in large-scale distributed virtual environments

Suiping Zhou, Wentong Cai, Bu-Sung Lee, Stephen J. Turner

January 2004 ACM Transactions on Modeling and Computer Simulation (TOMACS), Volume 14 Iss

Full text available: pdf(111.35 KB) Additional Information: full citation, abstract, references, index terms

Maintaining a consistent view of the simulated world among different simulation nodes is a funda large-scale distributed virtual environments (DVEs). In this paper, we characterize this problem time-space inconsistency in a DVE. To this end, a metric is defined to measure the time-space in major advantage of the metric is that it may be estimated based on some characteristic paramet clock asynchrony, message transm ...

Keywords: Consistency, dead reckoning algorithm, distributed virtual environments

17 Web technologies and applications (WTA): A learning-based approach for fetching pages in

Sharma Chakravarthy, Anoop Sanka, Jyoti Jacob, Naveen Pandrangi

March 2004 Proceedings of the 2004 ACM symposium on Applied computing

Full text available: pdf(251.87 KB) Additional Information: full citation, abstract, references

The World Wide Web is an omni-present and an ever-expanding source of data. Data on the web and changing. Many a times, users are interested in specific changes to the data on the web. Cu changes of interest, users have to poll the pages periodically and check for the changes of intere general-purpose information monitoring and notification system. It handles the specification, int and propagation of c ...

Keywords: ECA rules, best-effort algorithm, change monitoring, intelligent fetching, web

18 A dynamic optimization framework for a Java just-in-time compiler

Toshio Suganuma, Toshiaki Yasue, Motohiro Kawahito, Hideaki Komatsu, Toshio Nakatani

October 2001 ACM SIGPLAN Notices , Proceedings of the 16th ACM SIGPLAN conference on Object or systems, languages, and applications, Volume 36 Issue 11

Full text available: pdf(2.12 MB) Additional Information: full citation, abstract, references, citings, index terms

The high performance implementation of Java Virtual Machines (JVM) and just-in-time (JIT) com adaptive compilation optimizations on the basis of online runtime profile information. This paper implementation of a dynamic optimization framework in a production-level Java JIT compiler. Ou mixed mode interpreter and a three level optimizing compiler, supporting quick, full, and specia which has a differ ...

19 Inventory cost model for &ldquo;Just-In-Time&rdquo; production

Mahesh Mathur

December 1994 Proceedings of the 26th conference on Winter simulation

Full text available: pdf(543.16 KB) Additional Information: full citation, references, index terms

20 Approximations: Sketch-based change detection: methods, evaluation, and applications
Balachander Krishnamurthy, Subhabrata Sen, Yin Zhang, Yan Chen
October 2003 Proceedings of the 3rd ACM SIGCOMM conference on Internet measurement
Full text available: pdf(309.23 KB) Additional Information: full citation, abstract, references, citings, index terms

Traffic anomalies such as failures and attacks are commonplace in today's network, and identifyi accurately is critical for large network operators. The detection typically treats the traffic as a co to be examined for significant changes in traffic pattern (eg, volume, number of connections). H the number of flows increase, keeping per-flow state is either too expensive or too slow. We pro summaries of ...

Keywords: change detection, data stream computation, forecasting, network anomaly detection, analysis

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